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EXAMINER

EDWARDS, LAURA ESTELLE

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 12/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,030

Applicant(s)

BOBROV, YURI A.

Examiner

Laura Edwards

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17, 30-32 and 40-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17, 30-32 and 40-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 102104.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Allowable Subject Matter

The indicated allowability of all claims has been withdrawn in view of the broadened amended claims. New rejections based on the broadened claim language follows.

Claim Rejections - 35 USC § 112

Claims 1-17, 30-32, and 40-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 3-4, Applicants recite “at least one system for, ...at least one substrate supported on a substrate holder” and later in lines 7-9, refer to the systems being movable relative to the substrate holder such that it is unclear whether or not Applicant intends that the substrate holder be a part of the claimed invention. Presently, it is not clear structural limitation.

In claim 1, lines 7-9, Applicants recite that the systems are moveable however, it is unclear how the systems are moveable without the moving means being positively claimed. How does the claimed apparatus function as claimed without the moving means for the systems?

In claim 14, it is unclear what is meant by the phrase, “at least one fixed roller, ...moveable”. The language is contradictory in nature.

For claim 31, see the response to claim 14.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-3, 5, 7, 9, 11, 12, 14-17, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobrov et al ("Novel Dichroic Polarizing Materials and Approaches to Large-Area Processing") in view of Ardley et al (US 4,797,301).

Bobrov et al teach apparatus for forming polarizers via use of conventional coating apparatus including a moveable doctor blade, a rotatable roller or cylinder, or die head for deposition and simultaneous orientation of the lyotropic liquid crystal (LLC) on a moveably mounted or stationary substrate via shearing force (see entire document). Bobrov et al are silent concerning orienting the LLC on the substrate via at least one plate that is fixed on one end such that part of the plate's surface is unrestricted providing the orienting force on the LLC.

However, it was known in the coating art, at the time the invention was made to provide in a single system, a die head in combination with a flap device (i.e., plate) having a fixed end in order to apply and distribute coating material onto a moving substrate as evidenced by Ardley et al (see col. 4, lines 27-41). In view of the teachings of Bobrov et al and Ardley et al, it would have been obvious to one of ordinary skill in the art to utilize a conventional coating system

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including the combined applicator/flap device as taught by Ardley to apply LLC on the substrate so as to provide for deposition and simultaneous orientation of the LLC on the substrate.

With respect to claim 2, Ardley et al recognize feeding coating material to the die head via a pump (24).

With respect to claim 3, the pump fed coating system taught by Ardley et al constitutes at least one injector.

With respect to claim 5, Ardley et al recognize metered flow of the coating material from the die head in col. 2, lines 57-59.

With respect to claim 7, Ardley et al provide a flap which equates to the doctor blade.

With respect to claims 9 and 11, see Ardley et al col. 3, lines 53-56 for material from which to make the flap.

With respect to claims 12 and 17, Ardley et al recognize that the system is moved relative to the substrate via a control device (see col. 2, lines 45-51).

With respect to claims 14, 31, and 32, Ardley et al teach a coating system using a fixed steel bar (17) or weight to press the flap on the substrate.

With respect to claim 15, see Ardley et al, Fig. 3 with a rectangular shaped flap.

With respect to claim 16, the fixed steel bar (17) of Ardley et al would function to minimize vibration as it acts as a weight to press the flap on the substrate.

Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobrov et al ("Novel Dichroic Polarizing Materials and Approaches to Large-Area Processing") and

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Ardley et al (US 4,797,301) as applied to claims 1-3, 5, 7, 9, 11, 12, 14-17, and 30-32 above, and further in view of Fenoglio et al (US 5,755,881).

The teachings of Bobrov et al and Ardley et al have been mentioned above. Bobrov et al further recognize that after an aqueous based LLC composition is deposited and oriented on the substrate that solvent is removed (see bottom of page 225 to first line of page 226) but Bobrov et al and Ardley et al do not teach or suggest a solvent feed system and solvent removal system. However, it was known in the coating art, at the time the invention was made, to provide a solvent feed and solvent removal station downstream of a coating die head via providing a pivotably mounted solvent supply/vacuum nozzle to remove solvent to prevent drying of the coating or spoilage of the substrate during maintenance or start-up of the equipment as evidenced by Fenoglio et al (see col. 7, lines 35-40). It would have been obvious to one of ordinary skill in the art to provide the solvent supply/removal system as taught by Fenoglio et al in the apparatus defined by the combination of above in order to prevent premature drying of the coated substrate or spoilage of the substrate during maintenance or start-up.

Claims 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobrov et al ("Novel Dichroic Polarizing Materials and Approaches to Large-Area Processing"), Ardley et al (US 4,797,301), and Fenoglio et al (US 5,755,881) as applied to claim 40-42 above, and further in view of Doan (US 6,793,764).

The teachings of Bobrov et al, Ardley et al, and Fenoglio et al have been mentioned above none teach or suggest a solvent feed system moveable relative to the solvent removal system. However, it was known in the art, at the time the invention was made, to provide a

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solvent feed system moveable relative to the solvent removal system so as to control solvent splashing on the surface of the substrate as evidenced by Doan (see col. 2, lines 61 to col. 3, lines 1-4). It would have been obvious to one of ordinary skill in the art to provide a solvent feed/solvent removing system with parts moveable relative to one another as taught by Doan in the apparatus defined by the combination above in order to prevent solvent splashing on the substrate.

Claims 1-7, 9, 11-13, 15, 17, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobrov et al ("Novel Dichroic Polarizing Materials and Approaches to Large-Area Processing") in view of Krossa et al (US 6,471,776).

Bobrov et al teach apparatus for forming polarizers via use of conventional coating apparatus including a moveable doctor blade, a rotatable roller or cylinder, or die head for deposition and simultaneous orientation of the lyotropic liquid crystal (LLC) on a moveably mounted or stationary substrate via shearing force (see entire document). Bobrov et al are silent concerning orienting the LLC on the substrate via at least one plate that is fixed on one end such that part of the plate's surface is unrestricted providing the orienting force on the LLC.

However, it was known in the coating art, at the time the invention was made to provide in a system, a die head applicator in combination with metering rollers and a flap type doctor device (i.e., plate) having a fixed end in order to uniformly apply coating material onto a moving substrate as evidenced by Krossa et al (see col. 6, lines 27-41). In view of the teachings of Bobrov et al and Krossa et al, it would have been obvious to one of ordinary skill in the art to utilize the conventional coating system including the combined applicator/metering/flap system

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as taught by Krossa et al to apply LLC on the substrate so as to provide for uniform coating on a substrate.

With respect to claim 2, 3, and 5, Krossa et al provide slit nozzle (7) through which a desired amount of coating material is fed up to the substrate via means not shown.

With respect to claims 4 and 6, Krossa et al provide at least one metering roller (2, 6, 9, and 10).

With respect to claim 7, Krossa et al provide a flap device (16-20) that equates to the doctor blade.

With respect to claims 9 and 11, see Krossa et al, col. 6, lines 1-4 and 20-22 for material from which to make the flap.

With respect to claim 12, Krossa et al provide rollers (9 and 10) that facilitate application of the coating on the substrate and said rollers are vertically moveable.

With respect to claim 13, Krossa et al provide rollers (2 and 6) that facilitate application of coating on the substrate and said rollers are horizontally moveable.

With respect to claim 15, see Krossa et al, see col. 6, lines 1-4.

With respect to claim 17, Krossa et al recognize a control system as evidenced by col. 4, lines 7-12, 38, and 39).

With respect to claims 30 and 32, the flap or plate is fastened to a support bar (19) that allows the opposite end to uniformly meter the coating material on the substrate.

Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobrov et al ("Novel Dichroic Polarizing Materials and Approaches to Large-Area Processing") and

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Krossa et al (US 6,471,776) as applied to claims 1-7, 9, 11-13, 15, 17, 30, and 32 above, and further in view of Shelanski et al (US 3,235,631).

The teachings of Bobrov et al and Krossa et al have been mentioned above but Bobrov et al and Krossa et al do not teach or suggest an application roller with a relief pattern. However, it was known in polarizer manufacturing art, at the time the invention was made, to provide a patterned relief roller in combination with a die head so as to supply the coating material in a pattern on the substrate as evidenced by Shelanski et al (see col. 3, lines 37-40). It would have been obvious to one of ordinary skill in the art to provide a die head in direct contact with a patterned roller to apply a coating pattern on the substrate as taught by Shelanski et al in the apparatus defined by the combination above in order to provide a relief pattern on the surface of the substrate when forming the polarizer.

With respect to claim 10, it is within the purview of one skilled in the art to provide the desired relief pattern on the flap or plate downstream of the patterned application roller so as to continue the pattern on the substrate downstream of the application roller.

Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobrov et al ("Novel Dichroic Polarizing Materials and Approaches to Large-Area Processing") and Krossa et al (US 6,471,776) as applied to claims 1-7, 9, 11-13, 15, 17, 30, and 32 above, and further in view of Fenoglio et al (US 5,755,881).

The teachings of Bobrov et al and Krossa et al have been mentioned above. Bobrov et al further recognize that after an aqueous based LLC composition is deposited and oriented on the substrate that solvent is removed (see bottom of page 225 to first line of page 226) but Bobrov et

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al and Krossa et al do not teach or suggest a solvent feed system and solvent removal system. However, it was known in the coating art, at the time the invention was made, to provide a solvent feed and solvent removal station downstream of a coating die head via providing a pivotably mounted solvent supply/vacuum nozzle to remove solvent to prevent drying of the coating or spoilage of the substrate during maintenance or start-up of the equipment as evidenced by Fenoglio et al (see col. 7, lines 35-40). It would have been obvious to one of ordinary skill in the art to provide the solvent supply/removal system as taught by Fenoglio et al in the apparatus defined by the combination of above in order to prevent premature drying of the coated substrate or spoilage of the substrate during maintenance or start-up.

Claims 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobrov et al ("Novel Dichroic Polarizing Materials and Approaches to Large-Area Processing"), Krossa et al (US 6,471,776), and Fenoglio et al (US 5,755,881) as applied to claim 40-42 above, and further in view of Doan (US 6,793,764).

The teachings of Bobrov et al, Krossa et al, and Fenoglio et al have been mentioned above none teach or suggest a solvent feed system moveable relative to the solvent removal system. However, it was known in the art, at the time the invention was made, to provide a solvent feed system moveable relative to the solvent removal system so as to control solvent splashing on the surface of the substrate as evidenced by Doan (see col. 2, lines 61 to col. 3, lines 1-4). It would have been obvious to one of ordinary skill in the art to provide a solvent feed/solvent removing system with parts moveable relative to one another as taught by Doan in

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the apparatus defined by the combination above in order to prevent solvent splashing on the substrate.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura Edwards whose telephone number is (571) 272-1227. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Laura Edwards
Primary Examiner
Art Unit 1734

Le
December 23, 2004